GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, JUNE 20, 1894.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—The Cypresses of Monterey. (With figure.) 241
Architecture and Vines 241
Pacific Coast Seedling Fruits . . . . . *C. H. Shinn.* 242
Early June in the Pines . . . . . *Mrs. Mary Treat.* 243
FOREIGN CORRESPONDENCE:—London Letter . . . . . *W. Watson.* 244
CULTURAL DEPARTMENT:—Notes on Trees and Shrubs . . . . . *J. G. Jack.* 246
The Herbaceous Borders . . . . . *E. O. Orpet.* 246
Plants for Outdoor Decoration . . . . . *W. H. Taplin.* 247
Orchid Notes . . . . . *Plantsman.* 247
Bougainvillea glabra . . . . . *W. N. Craig.* 247
The Water-garden, The Noble Grasses . . . . . *J. N. Gerard.* 248
CORRESPONDENCE:—Notes from West Virginia . . . . . *Danske Dandridge.* 248
The Development of Fungi . . . . . *Professor L. H. Pammel.* 248
The New Nurseries at South Orange, New Jersey . . . . . *R.* 249
MEETINGS OF SOCIETIES:—The American Association of Nurserymen 249
NOTES 249
ILLUSTRATION:—The Monterey Cypresses (Cupressus macrocarpa), at Cypress Point, California, Fig. 41 245

The Cypresses of Monterey.

THE forests of Pacific North America are peculiar in the presence of several cone-bearing trees, each now confined to a small area—a remarkable fact, for Conifers are usually plants of wide distribution. At the north the Lawson's Cypress, Chamæcyparis Lawsoniana, the largest, stateliest and most valuable tree of its kind, occupies a few square miles of territory in the coast region of southwestern Oregon, with an outlying post or two on the head-waters of the Sacramento in northern California. The graceful Picea Breweriana is still known only in two or three small groves high up on the slopes of the Siskiyou Mountains, near the boundary line of Oregon and California, with only a few hundred individuals, old and young. Abies venusta, perhaps the most beautiful of the American Firs, occupies with a scanty growth a few of the interior valleys of the Santa Lucia Mountains of California; and Pinus Torreyana, the most local of Pine-trees, has only succeeded in retaining a foothold on the bluffs near the mouth of the Soledad River, in San Diego County, where it is scattered in open groves up and down the coast for a distance of five or six miles, with an outpost on the island of Santa Rosa.

But the most restricted in natural range of the American Conifers is the Monterey Cypress, Cupressus macrocarpa. This tree only grows spontaneously in the neighborhood of Carmel Bay, in Monterey County, California, and there are two groves; the larger stretches from Cypress Point southward to the shores of Carmel Bay, a distance of two miles; the smaller occupies Point Lobos, the southern boundary of the bay. The larger grove extends from the very edge of the sea-cliffs for about two hundred yards inland, when the trees begin gradually to mingle with the Monterey Pine, Pinus insignis, which on this particular part of the coast forms a large part of the forest-growth. In some portions of the grove the trees are crowded together, running up with tall stems and narrow pyramidal crowns; in others they are more scattered, displaying the flat heads of horizontal branches, which distinguish the oldest individuals. On the borders of grassy lawns scattered here and there through this grove are many noble single specimens; and on the very edge of the cliffs trees gnarled, twisted and dwarfed by centuries of conflict with the fierce winds, laden with saline moisture, that sweep in from the Pacific, show with what tenacity this tree has struggled to preserve its last foothold. But it is hardly possible to conceive that a tree of such vigorous constitution did not at some earlier period occupy a larger territory, or that it has not been driven to this inhospitable shore by the gradual drying of the California climate which followed the disappearance of the great glaciers of the Sierras, or by the direct action of fire in comparatively recent times, as Mr. John Muir, the most careful and experienced student of the changes of forest-conditions in California, suggests. The adaptability of the Monterey Cypress when transplanted by man to flourish in climates very unlike that of its present home seems to confirm this view.

Discovered less than fifty years ago by the German collector Hartweg, Cupressus macrocarpa was soon carried into the gardens of Europe, where in all temperate countries it grows with extraordinary rapidity and vigor; and now on the Pacific coast, from Victoria, in Vancouver's Island, to San Diego, it is everywhere the most universally planted coniferous tree, growing apparently in all climates, soils and exposures as freely as the young trees in the groves of Carmel Bay.

The peculiar habit, with their great gnarled, spreading branches, which the old trees assume in their home when they have stood without the immediate protection of companions is shown in the illustration on page 245 of this issue. No picture, however, can fully display the picturesqueness of these venerable trees or do justice to the whiteness of their bark or the dark green of the foliage that covers their ancient crowns; and no one who has not wandered through this grove on a sunny day in early spring can obtain from any picture or from any written words an idea of its beauty. Nowhere else on the shores of this continent, at least, can a picture of such unsurpassed beauty be seen or such a combination of bold, dark red, ragged cliffs, perpetually bathed in the spray of mighty breakers, of skies of the brightest blue and lawns clothed with grass of the tenderest green and studded with flowers of many brilliant hues, while above them the white trunks, sometimes twisted into a thousand curious shapes, sometimes straight and shaft-like, rise on all sides and spread their dark and sombre canopy.

Tens of millions of young plants of Cupressus macrocarpa planted in British Columbia, Oregon and California, in the countries bordering the Mediterranean and in western Europe, in Australia and New Zealand, will insure the preservation of the species; but its last natural stronghold should be jealously guarded, for Cypress Point is one of the most interesting spots in the world to the lover of trees; and there are few places in any country which so stir the lover of nature. One bad fire would sweep away every Cypress-tree in either of the two groves, and the animals, which are now allowed to browse at will and in large numbers in the larger grove, destroy all seedlings as they spring up, and, by impoverishing the soil, hasten the decay of the older trees. Self-interest on the part of the men who now own this grove and use it as the chief attraction to the guests of the hotel at Monterey will make them anxious to prevent fires, although apparently they have not established any system of fire-guards The same interest ought to induce them to prevent its injury and devastation by bands of cattle.

Architecture and Vines.

A PROPOSAL that the public buildings of this city should be ornamented with the Japanese Ivy, Ampelopsis tricuspidata, seems to have been favorably entertained by the officials who have the responsibility of decision, and has been promptly endorsed by the newspapers. There can be no doubt that, if discretion is shown

in this matter, the aspect of our city may thus be greatly improved, but discretion is always needful when a combination of architecture and of plants is in question, and the many attractive qualities of the Japanese Ivy should put us on our guard against its excessive use. It grows very quickly, thrives with little soil and in an urban atmosphere. It is free from insects, and while it clings so closely to the walls as to form an impenetrable shield against rain, it neither harbors dampness nor injures the solidity of a brick or stone surface. Nor is its deciduous habit altogether a defect. In winter the tracery of its leafless branches upon a background of gray stone has a delicate beauty of its own, and in the spring the gradual transformation of this exquisite gray net-work to a beautiful drapery of green gives an ephemeral charm to this vine which is lacking in the conconstant evergreen. Nevertheless, we cannot agree with the writer who recently declared that "nothing can be more pleasant to the eye than a house-front enswathed in the rich greenness of this plant, and the more it is used on our public and private buildings the better."

It should be remembered that in any combination of architecture and foliage the structure itself is the important element. Foliage should be its decoration, its garment, but not its shroud. It should be draped in green, but not enswathed in it. And thus the luxurious growth of the Japanese Ivy renders it in one sense our most dangerous creeper, for, unless closely watched, it will soon cover the building so completely as to obliterate all details of ornament, and even mar the clearness of its outline, thus forcing upon the mind the impression that the sole purpose of the architect had been to produce a frame-work which should support this mass of living green. We see an example of this in Grace Church. The effect of this structure was greatly improved by the planting of Japanese Ivy about it, but upon some portions the Ivy has been permitted to grow so luxuriantly that they look now, not like stones draped with vines, but like actual walls and pinnacles of leaves, and though this effect may attract and amuse the careless observer, it can give no pleasure to a cultivated taste.

It is fortunate for the effect of the reservoir on Fifth Avenue that its long walls were planted with Wistarias before Japanese Ivy became popular, and that these are not allowed to grow above a certain height. If the whole structure were covered with such a green shroud as swathes its central pavilion we should see simply a rectangular mass of green instead of a dignified building richly draped with foliage; and, besides the loss of form and detail, and the apparent loss of stability which would result from such treatment, there would be also a loss in beauty of color, for the Japanese Ivy displays its full beauty only when its many summer shades of green or its rich autumn tints are shown against the background of soft gray stone.

Moreover, various kinds of buildings differ greatly as regards the amount of foliage that may rightly be trained against their walls. Irregular or elaborately featured buildings, modeled after the romantic styles of architecture, may be more profusely draped than the very symmetrical or severe ones which represent the classical styles. We realize this when we think how the beauty of a ruined abbey in England is enhanced by a thick growth of Ivy, but how greatly the beauty of the ruins of the Parthenon would be decreased by a growth of the same sort. When a building is as severe in architectural expression as our pseudo-Egyptian Tombs, or when it is associated with such ideas as attach to the Tombs, any planting of vines against it would, perhaps, be a mistake. The Jefferson Market likewise contains a prison, but its name does not convey so grim a meaning to the ear, and the fact that it exhibits an ornate gothic style would justify some adornment with vines. But it is a question whether any such adornment would be advantageous in the case of the City Hall, the beauty of which resides in its symmetrical dignity and the perfect proportion of its parts. Certainly, if it is to receive any decoration of this kind, the work should be done with the utmost discretion, and the foliage should not be allowed to grow above its basement story. On the Post Office vines would be distinctly out of place, both because of the position of the building and of its architectural character. A drapery of vines would be so out of keeping with its solid and formal aspect that it would intensify rather than conceal its lack of architectural excellence.

An artist in planting would find it of much interest thus to pass in review all the public buildings of our city and decide where a garment of foliage would be an improvement, just how large a quantity would be desirable in each case, and how it should be disposed. But enough has been said, we think, to show that an artist's eye is needed, not only to regulate the initial plantings of vines or creepers, but to control their aftergrowth. The same considerations apply, of course, to domestic buildings. Among these we find so few that have any real beauty of architecture that their "enswathing" in green would displease the eye only by reason of the general fact that a solid wall of green similating architectural forms is an offense against good taste. But the better a house is the less should it be enclosed with vines. We should be sorry, for example, if the white Vanderbilt house on Fifth Avenue were wholly hidden from view during half the year by even the most beautiful growth of Japanese Ivy; and it would be a worse mistake to swathe the Lenox Library wholly in foliage, for greater care is needed with public than with private buildings, and in general the more monumental a structure the less appropriate is an overplus of green drapery.

Pacific Coast Seedling Fruits

HORTICULTURISTS on the Pacific Coast are rapidly supplying themselves with new varieties of fruits adapted to local requirements. It is probable that all the standard Peaches, Almonds and Apricots of to-day, and many of the standard sorts of other fruits, will in time be discarded, and that names now familiar to every producer and consumer will in a few years be known only in the history of pomology. To illustrate the extent to which seedling fruits are now being propagated, I have compiled these notes from personal correspondence and from local catalogues. The list is, however, far from being complete.

Among the more famous seedling Apples Marshall's Red takes high rank. This bears a large, deep-red winter apple of fine quality. Sonoma, a red-striped winter apple, and Santa Clara King, a yellow autumn variety, are both of California origin. Palouse is a choice winter apple from Washington, and is being extensively planted. Violet, a new red winter apple from Ione, Amador County, California, has been widely propagated; it compares in size with the Gloria Mundi.

Humboldt, Trinity and Siskiyou counties have old Apple-orchards grown from seed, and varieties of local reputation are being disseminated. As an illustration of the possibility in this class of fruits, as of other classes, I venture to give a recent experience of my own. On December 12th, 1892, returning from a visit to Mount Hamilton, the stage stopped at Hall Valley, a small, rich mountain-basin about two thousand feet above the ocean. Professor Barnard, who happened to be on the same stage, called my attention to a seedling Apple declared to be the best in the neighborhood, and grafts of this Apple, known as the "Brakefield," were obtained. Its parentage is Golden Pippin, but it is more evenly round, more solid and larger than the parent, and well striped with red, and of first-rate quality. The seed was planted by an old Cherokee woman some thirty years ago. The fruit of this Apple is preferred by some of the professors of the Lick Observatory to any of the standard sorts. The growth of the tree is something like that of Limber Twig.

Californians are planting extensively several seedling

Apricots, chiefly of the Royal or the Hemskirke types. Newcastle Early, Gooley and Smith's Triumph are all representative varieties; these resemble the Royal, but are earlier and better in many respects. Flickinger is a Hemskirke seedling, now being planted in the Apricot districts. Several coming seedlings not yet named are of the Moorpark type, and are said to bear much better. The Peach Apricot is represented by three or four distinct strains. Apricot-growers desire a highly flavored, richly colored fruit that will bear well and evenly, and there are indications that many new varieties will soon come into the markets. During the past year seedling Apricots have been sent to the Experiment Station from almost every fruit-district in California.

The seedling Almonds, now planted in large orchards in California, are largely from the nurseries of Mr. Hatch, of Suisun. His I. X. L., Nonpareil and Ne Plus Ultra are all good bearers, and the fruit is excellent. The Commercial is a Tulare County seedling. Golden State comes from Yolo. Lewelling's Prolific originated in Napa. California seedling Almonds are now being planted much more extensively than the imported varieties, as they bear better and are more profitable. It is also remarkable that the proportion of hull and shell to the weight of kernel is much greater in the standard European sorts, such as the Languedoc, than in the new California seedlings.

The era of new seedling Cherries began a few years ago with the Centennial, a seedling of the Royal Ann (Napoleon Bigarreu); the Thompson seedling, resembling Black Tartarian, and the Oregon, a fine large late cherry. Other seedlings are appearing, such as Chapman, Purity and California Advance. The veteran horticulturist, Seth Lewelling, of Milwaukee, Oregon, who first carried fruit-trees across the continent, originated a new Cherry, the Bing, which has been extensively planted in Oregon, and is being introduced into California.

Californians are originating many new varieties of Peaches, and the Oregonians, considering their lesser acreage, are doing nearly as well. In the Hale's Early class, Oregon has probably made an advance with S. G. French and Early Charlotte. Stilson is a large yellow freestone two weeks later than Late Crawford, very popular with the canners. Jones's Seedling is of a similar type, but earlier. California Cling, Austin Cling and Day's Cling are all very large, solid and showy seedlings of the Orange Cling type. George's Late and Winters are fine new seedlings of the Heath Peach. In the department of Cling Peaches five sorts out of six now planted are likely to be California seedlings; in other departments, also, the large orchards are chiefly planted with seedling sorts. Muir, for instance, a Vacaville seedling, is now the most popular yellow sort among orchardists. It is beginning to be difficult to keep track of the new Peaches, even in test-orchards. Many kinds show but little variation from the older sorts, and a more rigorous discarding of second-rate varieties is necessary.

There are many new California seedling Pears of promise. Santa Ana, a large bright golden russet Pear, said to be equal to the Winter Nelis in flavor, is being planted largely. It is a late-keeper. I have seen two Humboldt County seedlings, as yet unnamed, that are among the very largest of California Pears, and they seem to be worth trying. The Fox seedlings are now standard sorts.

Napa Valley has produced the famous Clyman Plum, a seedling of the Peach Plum, but the fruit is much finer, and equal to the best for shipping to distant markets. A promising Stanislaus County seedling is Uncle Ben, which produces a large late yellow plum that will keep in good condition until near Christmas.

In the Prune class, Oregon growers now send out a new prune called the Golden, a seedling from the Fellenberg, a very large fruit of the finest quality, also the Oregon and the Champion, both untested in orchards in California. Ruby is a new Lake County, California, Prune of dark red color, and Elmore, lately produced in Shasta, is a very early Prune, a Sacramento Valley seedling. Tennant is a new and highly praised Prune from the state of Washington.

The best table Grape yet originated in California is an Isabella sport from Santa Clara, known for some years as Isabella Regia, but now classified as the Pierce. It has probably the largest berry of any grape of the American type, and the vigor of the plant is remarkable. It is worthy of general introduction wherever its parent, the Isabella, is hardy. A large grape from Yuba of the Flame Tokay type is coming into notice. It is called the Bishop.

In Walnuts, besides the Santa Barbara soft-shell Walnuts, well known in the warm coast valleys, there are now several new sorts originated in the Sierras by Mr. Felix Gillett. One is the Mayette-shaped Prœparturiens; another the Cluster Prœparturiens, and a third the California Chaberte. Mr. Gillett's collection of Walnuts in bearing comprises twenty imported varieties.

Strawberries, Gooseberries, Currants and Blackberries are well represented by desirable Pacific Coast seedlings, but the list is already so long that I hesitate to continue. In every department of horticulture the last few years have shown great gains. For every seedling fruit that is being introduced there are a dozen or more that are still being tested. It is interesting to note that many fruit-growers find profit in seedlings. They plant them in orchards before the general public is allowed to know of their existence, and sell exclusive rights to nurserymen. The nurserymen themselves are trying to produce new kinds. Some of them have found it to their advantage to search through the old seedling orchards of the mining period, where many valuable new sorts have already been discovered. The scientific hybridizer finds peculiarly favorable opportunities for his work in the orchard districts of the Pacific coast from San Diego to Puget Sound.

Berkeley, Calif. *Charles H. Shinn.*

Early June in the Pines.

THE finest display of flowering plants in the Pines is in early June, when the Laurel, Kalmia latifolia, is a mass of brilliant bloom varying in color from rose-pink to pure white. The Magnolia, too, is then in flower and fills the air with its heavy fragrance, and in many places the Laurel is as tall as the Magnolia. The beautiful effect of the natural massing of handsome trees and shrubs in the damp Pines cannot easily be described. The Fringe-tree, Chionanthus Virginica, still shows its graceful white blossoms, though not as fully as in May. The large, nodding clusters of the Stagger-bush, Andromeda Marianna, are at their best, as are also the panicles of A. ligustrina. The Dwarf Huckleberry, Gaylussacia dumosa, with bell-shaped, white flowers, is common in the damp Pines in company with the low Laurel, Kalmia angustifolia, which has rich clusters of deep rose-purple flowers.

Xerophyllum setifolium is showy and attractive now. Some of the larger plants bear from five to ten stately flower-scapes surmounted with a compact raceme of white flowers which rise from a wealth of vivid green, long, grass-like leaves. Medeola Virginica is also an interesting plant, though not showy. It has a whorl of leaves about half-way up the stem, and is surmounted by a smaller whorl and an umbel of small recurved, lily-like flowers. On pulling the plant up by the roots a strong odor of cucumber is detected, from which it takes its common name of Cucumber-root. Another plant in the Lily family is the handsome Amianthium muscætoxicum, just coming into bloom. Among many other beautiful herbaceous plants now in flower is Arethusa bulbosa, one of our most charming Orchids, which began to bloom in May, and good specimens of its bright rose-purple flowers may still be found. Pipsissewa, Chimaphila umbellata and Spotted Wintergreen, C. maculata, show the first of their fragrant, wax-looking flowers. Schwalbea Americana is now in flower—a downy plant, in touch, like the softest velvet. The flowers are purple and yellow, about an inch in

length, and are borne on a long spike. The stems are straight and simple and very leafy. The lower leaves are two inches or more in length and are gradually reduced in size until they become small bracts at the top.

Many vines are now in blossom, with inconspicuous greenish flowers, but their handsome foliage and, later, the fruit will make up for lack of beauty in the flowers.

During the past month of cloudy and rainy weather the foliage has developed rapidly. I cannot recall any spring-time when there has been so much color in the leaves of certain trees, shrubs and herbaceous plants as there is now. The chlorophyll has not developed as fast as the leaves have grown, and the result is that the tender foliage exhibits the color of mature leaves in all shades of red, pink and purple; but a few days of sunshine will give them their green color.

At this season the birds in the Pines often lure us from the flowers. The manners of the catbirds, the thrushes and the song and vesper sparrows that live in the Pines are very different from those of the civilized birds that live in our gardens and on our lawns. Some of these wild birds make much ado over our presence on their domain, while others, like the quail and snipe, keep perfectly quiet and try to deceive us, at times even feigning death. On the margin of a swamp I was attracted by the mottled appearance of something on a bed of green moss. Upon a nearer approach I thought it a lifeless bird, and as I brought my hand down to take it up, it startled me by flying almost into my face, and then half-flying, rolling and tumbling away, as if badly wounded; it was evidently trying to lure me in pursuit of itself, uttering meanwhile not a sound. It was somewhat larger than a quail, a Wilson's snipe, Gallinago Wilsonii, and was brooding four young ones not yet old enough to skulk and hide. As the mother hurriedly rose in her precipitate flight she overturned two of the brood and left them lying flat on their backs. And how dead they all were, except their bright eyes! Their long bills were hugged close to their breasts, and their dark-colored long legs were drawn close to their bodies. I called the botanical hunters to come and see the little frauds simulate death, and we stood around them laughing and talking, but they were equal to the trying ordeal, and did not move a muscle, though they watched us closely with their shining eyes. We left them and returned in about half an hour. The mother was still near by in the bushes trying to attract our attention to herself. The young ones were in the same positions as before, with the exception that one of them had straightened out a leg which looked stiff and rigid. We were all too kindly disposed to touch the little things, and left them on their bed of moss as we had found them.

Vineland, N. J. *Mary Treat.*

Foreign Correspondence.

London Letter.

New Plants.—A sale of a somewhat novel character took place to-day at the auction-rooms of Messrs. Protheroe & Morris, who offered the entire stocks of thirty of Messrs. Lindens' new plants which have not yet been sent out. It is usual for such establishments as the famous Brussels Nurseries, over which the Messrs. Linden preside, to jealously watch over all such new plants and to distribute them, partly for the honor and glory of the thing. The reason given for this new departure is that Messrs. Linden, having no room for propagating on a large scale their new introductions of fine foliage-plants (their houses being occupied by extensive importations of Orchids), have decided to sell by auction, every spring, the entire set, each in one lot, of their discoveries.

Most of their new plants are valuable for hybridizing, and many of them have received first-class certificates at the meetings and at the Temple shows of the R. H. S. A part of the plants offered in this sale were exhibited at the great Temple show, on May 23d, 24th and 25th, where they were awarded eleven first-class certificates, a silver cup being awarded for the group. They comprised new Tree-ferns, Begonias, Marantas, Tradescantias, various Aroids, Hæmanthus Lindeni, etc. Evidently the auction-room has now become a much more important factor in commercial horticulture than it has ever been before.

Gmelina hystrix.—The genus Gmelina consists of eight species of Asiatic trees and shrubs, and is related to Clerodendron. G. hystrix is the most ornamental of them, judging by a specimen of it now flowering for the first time at Kew. It has a stout, woody stem, with long, slender Bougainvillea-like shoots clothed with bright green ovate or lobed leaves and bearing drooping terminal cymes of large, yellow flowers which spring from large, ovate, overlapping, brownish bracts. The corolla is tubular and divided at the top into four segments, the lowest of which is much the largest. The plant grows freely in a moist stove. According to Mr. Goldring, who brought this plant from Baroda, it is a most useful shrub in Indian gardens, and one which can be utilized there for fences, as it grows quickly and develops strong spines. A figure has been prepared from the Kew plant for publication in the *Botanical Magazine*.

Eupatorium serrulatum has lately been introduced from Brazil by Monsieur E. André, to whose energy horticulture is indebted for many new and useful plants, Senecio sagittifolius being one of the most recent. The Eupatorium has long been known to botanists as a shrub about four feet high, with ovate, serrated, hairy leaves from one to three inches long, and numerous terminal compound panicles of bright rose-purple flowers, the strongest branches producing heads six inches across. It grows as freely and flowers as profusely as any of the Eupatoriums already in cultivation, and, no doubt, will thrive under the same kind of treatment. For such places as the Riviera and California it will be an acquisition as a hardy shrub. Monsieur André informed Mr. Gumbleton, to whom he sent the specimens which I saw, that this plant would prove a good acquisition for his garden at Belgrove, and no one who knows Mr. Gumbleton would venture to recommend any but really good plants to him.

Polypodium Schneiderianum is said to be a hybrid between P. aureum—one of the best-known and largest of tropical species—and P. vulgare, var. elegantissimum, a garden form of our common wild Polypody. A fine specimen of the hybrid was shown by Messrs. J. Veitch & Sons at the Temple show last week, and I believe it originated in their nursery. It is a most graceful plant, forming a specimen a yard through, with large arching bipinnate fronds elegantly subdivided into teeth or lobes. It will thrive in an ordinary greenhouse, and is likely to become popular for the conservatory. A first-class certificate was awarded to it.

Adiantum reniforme asarifolium is a distinct and pretty variety of the Kidney Maidenhair, differing from the type in having stipes a foot long and thick, glaucous green blades. It was introduced to Kew from Mauritius a few years ago. Some fine examples of it were among the Ferns exhibited by Messrs. J. Veitch & Sons last week.

Rosa spinosissima, var. grandiflora, is the most attractive single-flowered Rose among the many species and varieties which are now in flower at Kew. The type, the Scotch or Burnet Rose, is well known to your readers, and appears to be as delightful in your gardens as it is here. But this variety is a very different-looking plant, and can only be accepted as a form of the Scotch Rose in an extreme sense. Here it is planted in a large oblong bed on one of the lawns skirting a walk, and the bed is now a miniature forest of leafy shoots two to three feet long, with scarcely any bristles, healthy green foliage, and crowded with beautiful single flowers, three inches across, say, as large as those of Cistus laurifolius, milk-white, with a small maroon eye formed by the stamens. It is a most lovely Rose, and as happy under cultivation as a Sweet-brier. According to Lindley, who figured it in his *Botanical Register* (t. 888), this plant is a native of Siberia, whence it was introduced in

1818. It grows to a height of six feet. It is emphatically a plant for every garden, flowering in May and June.

WISTARIA MULTIJUGA attracted considerable attention at the Temple show last week, where a box of its long slender flower-clusters was shown from the garden of the Hon. W. F. D. Smith, Henley-on-Thames. It differs from W. Sinensis in having smaller flowers, with shorter pedicels, a looser arrangement, and in the length of the racemes, which in some cases were nearly three feet long. It has long been in cultivation at Kew, but is scarcely known in gardens. Although not so grand a climber as W. Sinensis, which, by the way, has easily earned for itself this year the right to be called the most beautiful climber in cultivation here, yet it has merit, and is worth a place on a wall or against a tree in every good garden. It is, of course, Japanese, and was first introduced into Europe in 1874, nearly sixty years after W. Sinensis came to us from China.

flowers scarcely an inch in diameter, with small, globose, reddish fruit, and that it is a very common and characteristic shrub, forming with Amygdalus eburnea the greater part of the scrub on the stony ridges of the Hariáb district. At Kew it is grown in the rock-garden, where its branches are long and arched over; crimson when young, and clothed with broad-based spines, the leaves an inch long, composed of about nine leaflets. The flowers are about as large as those of the common field Buttercup, R. acris, with five petals, a large cluster of stamens, the color being bright buttercup-yellow. The branches are never erect, but hang over, and they are now clothed with numerous flowers, the effect being that of drooping slender racemes of yellow flowers. It is a pretty little rose.

PRIMULA IMPERIALIS, the great yellow-tiered Primrose from the Java mountains, is again in flower at Kew, where, it will be remembered, it flowered for the first time in cultiva-

Fig. 41.—The Monterey Cypresses (Cupressus macrocarpa), at Cypress Point, California.—See page 241.

[Wistaria multijuga is probably not a Japanese plant, although it is the most commonly cultivated species in Japanese gardens, but a native of China or Corea. The common Wistaria of Japan is W. Sinensis, a native of all mountain forests in the three southern islands, below elevations of 5,000 feet. Wistaria multijuga flowers in this country, where it is perfectly hardy as far north as eastern Massachusetts, twelve or fifteen days later than W. Sinensis. This makes it particularly valuable by prolonging the flowering season of these plants. The flowers exhale a delightful perfume, while those of W. Sinensis are nearly scentless.—ED.]

ROSA XANTHINA was introduced to Kew about twelve years ago by Dr. Aitchison from Afghanistan, and described as a new species in the *Journal of the Linnæan Society*, where it is called R. Ecæ. Aitchison says it is a small stiff shrub with numerous prickly stems, small leaves, and yellow

tion four years ago. It is too tender to be grown in the open air, nor can it endure bright sunlight, the happiest position for it being on the shady side in a cool moist greenhouse. A rich open soil, a liberal allowance of pot-room and daily supplies of water are essential to its healthy growth. Under this treatment the plants at Kew have made large healthy foliage and pushed up scapes as thick as a man's little finger, which will probably grow a yard high. The flowers, which are rich yellow, are arranged in whorls in tiers, as in P. Japonica. We have never succeeded in crossing P. imperialis with any other species. Its nearest ally is P. prolifera, from the Himalayas, a smaller and much less interesting plant.

A traveling greenhouse is the latest English labor-saving invention, and a company, the Horticultural Traveling Structures Co., have taken out a patent for this, and are taking considerable pains to bring it well into public

notice. The invention is a greenhouse, without a floor, on wheels, which run on a tramway of the same width as the greenhouse, along which it can be pushed to cover any area inside the tramway. Thus a bed of Roses, say, three hundred feet by twenty feet, can be brought on in three successive batches by a greenhouse one hundred feet by twenty feet. In America there is nothing novel in traveling houses, nor is there in England in movable plant structures, and, except for its size, the traveling greenhouse is only the old-fashioned portable frame with wheels to facilitate its motion. It has one special value for English horticulturists, as, not being a fixture, it cannot be claimed by the landlord.

London. *W. Watson.*

Cultural Department.

Notes on Trees and Shrubs.

WITH the exception of the so-called English Hawthorn or White Thorn, Cratægus Oxyacantha, and its varieties, and the little south European scarlet-fruited C. Pyracantha, few of the Hawthorns appear to be grown in American plantations for the intrinsic beauty of the flower or fruit. This fact is due to lack of appreciation rather than lack of beauty or ornamental quality in the flowers, for some of our native Hawthorns produce blossoms which cannot be rivaled by other species, not even by the English Hawthorn in its aboriginal state, and which to many English people is known as the "May." The English Hawthorn is more popular, too, because, by long cultivation and careful selection, many interesting variations have been procured and perpetuated by grafting, layering or other modes of division, so that now the catalogues offer varieties with single and double flowers, either white or of various shades of red color. Varieties with modifications in the shape of the leaves and size and color of the fruits are also offered. But there is no reason why we may not in the course of time, and with careful selection, derive equally interesting horticultural variations from some of our native species. In their wild state the different species native in north-eastern America produce a sequence of blossom from the middle of May to the end of June. The earliest to blossom is C. mollis (long regarded as a variety of C. coccinea), which in this latitude is usually in bloom from the middle to the end of May. Its flowers are as large or larger than those of any other species, expanding an inch or more in diameter. The fruit which follows is also of the largest, being an inch or more in diameter, deep scarlet in color, ripening in early September, and falling soon after maturity. When fully ripe, this fruit is mellow and soft, and often of a decidedly pleasant flavor. The large, broad, ovate leaves are distinguished by being densely soft pubescent on the under side. C. mollis will become a symmetrical little tree twenty or twenty-five feet high, and is thoroughly hardy, as it grows wild far north into Canada. It is usually armed with long spines, which are less numerous as the tree grows old.

The Scarlet Haw, Cratægus coccinea, is extremely variable from a botanical point of view, and its flowers may be one or two weeks later in opening than those of C. mollis. These flowers, too, are smaller, and the Thorn itself does not often reach the large tree-like size attained by C. mollis. The blossoms of the Dotted Thorn, C. punctata, appear a week or ten days later than those of C. mollis. They are somewhat smaller, but are borne in great profusion in corymbs along the upper sides of wide-spreading branches. In full bloom it is a very handsome object, either when seen from a distance or on nearer inspection when the large rose-colored anthers show distinctly against the snow-white petals. It is very hardy, and near Montreal, in Canada, specimens may sometimes be found with trunks a foot and a half to two feet in diameter, and branches which spread on each side more than twenty feet from the centre. In size it is not exceeded by any other of our northern species. Its fruit, which ripens in the late autumn, is large, of firm texture, pleasant to the taste, and will often keep fresh under the snows until the following spring. It is usually red in color, sprinkled over with numerous whitish dots, but trees bearing bright yellow fruit are not rare.

The season of bloom for C. coccinea and C. punctata is also the season for the English Hawthorn. The fruit of C. mollis is well grown by the time that the flowers of the Cockspur Thorn, Cratægus Crus-galli, are open, for this Hawthorn is just now, June 12th, coming into best bloom. As it grows here this is, perhaps, the most readily distinguished of all our native Thorns, its obovate, wedge-shaped, evenly toothed, leathery smooth and glossy shining leaves being unlike those of any other species. It has probably been more often cultivated, both in this country and Europe, than any other American species, and altogether it is a most attractive little tree. The flowers, though not very large, are produced in abundance and are pure white in color, and they are followed by medium-sized fruit, which, when ripe, is of a dull red color and persists on the plants throughout the winter. This species has been somewhat used for hedges in some parts of the country.

The flowering of another hardy American Hawthorn, Cratægus tomentosa, is simultaneous with that of the Cockspur Thorn. It is a sturdy, vigorous growing species, forming a neat little tree. One of the latest of Hawthorns to blossom here is the so-called Washington Thorn, C. cordata, which naturally does not range so far north as the species already mentioned, but in cultivation proves quite hardy in this climate. Its blossoms are at least a week later in opening than those of the last two species, so that this is the Hawthorn which we are most likely to find in blossom toward the end of June. It is a slender tree, covered with clear, shining, bright green, triangular leaves, which are usually more or less three to five lobed and irregularly toothed. These leaves persist on the trees until late into the autumn and gradually change to bright colors before falling, and the bright effect of the foliage is increased by the small brilliantly colored fruit which may remain on the plants throughout the winter. This species has also been used for hedges, and either for this purpose or as a single plant it is well worth the attention of cultivators.

Arnold Arboretum. *J. G. Jack.*

The Herbaceous Borders.

THE recent cool, showery weather has been most favorable to herbaceous plants, and I do not remember ever to have seen the borders look better than they do now, and there is abundant promise of growth and beauty during the next few weeks. The perennial Lupins have been, and still are, very showy. The variety grown here is L. polyphyllus, in various colors, from pure white through the different shades of lilac to deep purple. These are all seedlings from what was supposed to be seed of L. polyphyllus albus, but if the different colors are grown together, no one color can be depended upon to come true from seed. Lupins like rich soil, and do not bear transplanting when once established, and it is advisable to sow seed over again rather than transplant old plants. It has been told me that the common L. perennis, so plentiful here in a wild state, cannot be taken up and be made to live in a garden; this seems to be only half the truth, and that it is much easier to raise seedlings to secure the same results appears to be the other half.

The herbaceous Pæonies are just opening their first flowers, and, true to their past record, the rose-bugs arrived here the same day. It is a regret that we cannot enjoy these summer flowers more, and the question suggests itself, why are not the Tree or Mountain Pæonies more often seen? These have been fine for nearly three weeks, and the flowers are as handsome as the later herbaceous kinds, though, perhaps, of a more limited range of color, but they are much more rarely seen in gardens than the universally grown herbaceous kinds. There once was a suspicion that the Tree Pæonies lacked hardiness, but here, in one of the coldest parts of the eastern states, they thrive without any protection. It is true that these plants are not easy to obtain from dealers, but should the demand increase the supply will probably be equal to it, as houses importing Japanese plants offer as many as fifty distinct varieties, and even propose to send colored plates of all these kinds for inspection and selection. Among such a large number of kinds there should be a good assortment of colors to relieve the monotony of the various shades of pink and rose usually offered.

Eremurus robustus, received last fall from Holland, has now a fine spike of bloom on the plant, and as the flowers open in succession, it will last several weeks. The pretty pale pink blossoms on a cylindrical spike about five feet high are really ornamental, and as the seeds are produced freely in this climate, there is no reason why the plants may not soon be seen in many gardens. E. Himalayicus was also planted, but this year it has made two crowns, and in consequence has not flowered; but another year it will be a fit companion plant to E. robustus. No special care appears to be needed in their cultivation. The thick fleshy roots are produced in a whorl from the crown, and these need to be carefully placed in the soil. No covering was given as a protection to our plants,

though this was due to an accident, since heavy snow fell before the work was done.

Lindelofia spectabilis is one of the best blue-flowered perennials in bloom now, and it has been good for some time past. This is one of the introductions of Herr Max Leichtlin, from whom we received the seeds. It is a near relative of the Anchusa, Mertensia and Borage.

South Lancaster, Mass. *E. O. Orpet.*

Plants for Outdoor Decoration.

IN suitable locations some of the Musas are valuable for outdoor decoration during the summer, but the leaves of many of the species are easily injured by wind-storms, and it is, therefore, necessary to plant them in sheltered portions of the garden. In the middle and northern states I have found Musa Cavendishii, M. Ensete and M. Martinii to be the best for cultivation in the open air.

Of these, M. Cavendishii is the most dwarf, and is, for this reason, the best species for use in small conservatories; it frequently attains its full growth and produces fruit when only six to seven feet in height. The Abyssinian Banana, M. Ensete, under favorable conditions makes immense leaves. The reddish midribs add greatly to its effectiveness, but, unfortunately, the foliage is liable to split into ribbons in a strong wind. M. Martinii is a later introduction than M. Ensete, and of somewhat similar character; it seems to resist the wind better, and is, consequently, likely to be used more generally for outside planting as soon as it becomes plentiful. These two species can only be propagated from seeds, so far as I have learned, but the Chinese Banana, M. Cavendishii, produces suckers from the base of the stem, and as their growth is rapid they soon grow to a useful size.

The chief points to be observed in the cultivation of Musas, either under glass or out-of-doors, are plenty of moisture and a rich well-drained soil; one-third manure is not too much to use in potting soil, and for outdoor planting they should be thoroughly watered at least every second or third day during dry weather.

Two species of Strelitzia, at least, should be included for conservatory-decoration during the winter and spring months, and these are also useful for diversifying subtropical bedding during the summer. Their leaves are decidedly tough and are seldom injured by either wind or rain. The most common species, Strelitzia Reginæ, is probably the oldest in cultivation; with reasonable care it produces brilliant flowers quite freely during the spring months. S. augusta is a much stronger grower than S. Reginæ, and reminds one of the foliage of the Traveler's Joy (Ravenala Madagascariensis). These plants are generally propagated by division of the roots, and this is best done in the spring; the plants should be kept somewhat close for a short time after division, when they will soon become useful, either for the conservatory or the flower-garden.

Humea elegans, a useful decorative plant, is not new either for greenhouse-decoration or for outdoor planting, for I recollect seeing it used for both purposes at least eighteen years ago in central New Jersey. There the warm sandy soil seems particularly suited to it, and its pinkish, feathery inflorescence and bold foliage made a striking centre-piece for a large circular bed. Plants of H. elegans should be raised from seed the previous season and grown on with plenty of light and air in an intermediate house. Sufficient soil and moisture must be provided for the plants. Humeas soon lose their bottom leaves when pot-bound or if allowed to become very dry. The beginning of June is, I think, early enough to plant them out, for if exposed too soon the foliage becomes rusty and unsightly.

Holmesburg, Pa. *W. H. Taplin.*

Orchid Notes.

ONE of the most difficult points in the cultivation of Orchids is to prevent a second growth from the same set within a year. This is fatal to some Orchids, as Dendrobium Wardianum; on others the effect may not be noticed at once, or even in the same season, but bad results are sure to follow in time. Dendrobium Wardianum is the first of the genus to make an early start. Plants of it are kept in the intermediate house this year, so that its growth may be somewhat checked, and to prevent its maturing early. Dendrobiums present a wide study for the cultivator who has any large number of species under his care. The season is, as already said, often too long for some species, though never too long for others, as D. Dalhousianum and D. Brymerianum, while for others the growing and resting periods should be distinctly marked. D. formosum is an example of the latter class. Their resting season should now be over and the plants started into active growth and encouraged to go on without a check through the summer. When their growth is completed, the flowers will be produced without a rest. When these have faded, the plants require at least six months' rest in a cool house, kept at about forty-five or fifty degrees. This is the practice adopted by Mr. George MacWilliam, of Whitinsville, Massachusetts, and, I believe, was originated by him. He has had the plants now under his care for nine years, and they cannot be excelled as examples of good cultivation.

We formerly had trouble in getting Cypripedium insigne to flower well, because we made the mistake of having very thrifty plants. They were treated to manure-water, and were green and vigorous, but when the time for flowering came the plants simply continued to grow and look strong, and did not flower. We now keep them in the coolest place in summer to prevent any second growth that might be induced by heat, and have left off giving manure-water except to such as are root-bound and really need it.

We are trying Cattleyas and Lælias in a large, cool and airy structure for the summer, and they have improved in looks already. Small houses have a tendency to become overheated in the hot months of the year, far beyond the requirements of these plants. This causes the growths to mature early, and a second growth ensues. The plants are thus deprived of the absolute rest so beneficial in winter and conducive to satisfactory flowering. A few pieces of Lælia præstans, imported last fall, have done well simply pegged on a piece of Fern-root and suspended in the cool-house. There L. Dayana thrives, and L. præstans has already flowered and is now starting to grow again in a strong and pleasing way. The roots are rambling through the piece of Fern-root and seem to appreciate their freedom. Lycaste Skinneri should never become dry at any period of the year. The roots are always more or less active, even in midwinter, since that is the flowering season. An occasional wetting with weak manure-water is a decided benefit to the plants, especially when in active growth or about to flower. Under this treatment bulbs of immense size are obtained and an abundance of flowers produced.

Orchids with roots of the same structure as the Cattleyas should not be stimulated by the application of manure-water to the roots, but ammonia in the atmosphere is decidedly beneficial, and this may be applied by damping down under the stages occasionally with weak manure-water. I have found, on the contrary, that the Calanthes, Phajus, Pleiones, Cœlogynes and Selenipediums are improved by an application of manure-water when in active root-growth; the structure of their roots is altogether different from those of Cattleyas, Dendrobiums, Odontoglossums and other genera of Orchids.

Boston, Mass. *Plantsman.*

Bougainvillea glabra.

THIS is one of the finest of all climbers for the stove or greenhouse. It does best in a house where a minimum temperature of fifty-five degrees can be maintained in winter, but I have grown it successfully in an ordinary greenhouse, where the thermometer occasionally fell to forty degrees. In the warmer house the blooming season is earlier, but in a cooler structure the color is better and the flowers have more substance. Bougainvillea glabra may be successfully grown and flowered in a pot, tub, box or bench. Trained on a balloon trellis, it makes a handsome exhibition plant, and with Stephanotis, Allamandas, Clerodendrons and Dipladenias is found in most of the summer and autumn exhibitions in Great Britain. It is advisable to give the plant a good light position. For compost, ordinary fibrous loam, with a good admixture of well-rotted cow-manure and a dash of sharp sand, will be found suitable. When the plant has become root-bound liquid-manure may be freely applied, and a surface-dressing of cow-manure will be helpful.

It is easy to have flowers of B. glabra in summer, but to have a full supply during the dark winter months is a more difficult matter. By withholding water during the summer and only moistening the surface-soil once a day, the plant practically can be held in a dormant condition. Early in the fall the plants may be repotted, or some of the surface-soil may be removed and fresh, rich compost added. The plant will stand rough handling at this time, and, if necessary, a portion of the roots may be cut away and the plant pruned to suit the space it is intended for. If it is then kept well watered and given an ordinary Rose-house temperature, there should be a good show of bloom by the new year, and the flowering

will last until midsummer. I have propagated Bougainvilleas from soft shoots rubbed off with a heel and half-ripened wood. A good bottom-heat is necessary, and the soft shoots will damp off if not carefully watered. The finest specimen of B. glabra I remember to have seen is in one of the greenhouses of Miss M. S. Walker, at Waltham, Massachusetts. The plant covers a large space and has shoots six to nine feet long, which are covered more than half their length with bright pink flowers. The plant is on a bench, and the treatment given to it by the gardener, Mr. P. Cairns, is similar to that already described.

Taunton, Mass. *W. N. Craig.*

The Water-garden.—Hardy Nymphæas have been in bloom here for several weeks, but the tender kinds lately planted have made no progress in the low temperature. The Swedish Water-lily, Nymphæa alba rubra, has flowered in the tank, giving me my first opportunity to observe it closely. It does not appear to me to be a handsome variety. On first opening the outer petals are nearly white, the second row slightly shaded, and inner row deeply stained with pink. In this phase it is fairly pretty. Later it deepens with a dull bluish tinge, and could not be considered handsome by any stretch of the imagination. This Nymphæa, with me, is a thrifty grower, and I have not, after three years, discovered the conditions required for its successful culture. It has been shifted from very fertile soil to a less stimulating one and back again, and in deep water and again in shallow, without apparent indication of its preference. It sulked in the bottom of the tank nearly all last season, but lately has taken a new start, after the complete winter's rest. All the hardy Nymphæas seem to gather strength enough during the winter and, perhaps, late fall to carry them well forward another year without stimulants. Perhaps, also, the tanks accumulate certain elements from rains, snows and decaying vegetation, which are helpful in the early growing season. With my limited space it pleases me to grow more of a variety of Nymphæas than can be properly accommodated. Hence I prefer small plants and to use only enough fertilizer to keep them in good heart. They will mostly grow well enough in ordinary soil till the middle of summer, at which time they are apt to show the need of stimulants. At present a spare piece of N. alba candidissima is flowering in the tank, its roots having been in an eight-inch pot with very little soil for two seasons. Its leaves, however, are imperfect. Of course, where space is available, Nymphæa-tubers should be planted in very rich soil. The hardy Nymphæas are really hardier than usually supposed; the tubers will survive if frozen up solidly, as will sometimes happen.

The Noble Grasses.—These plants grow in effectiveness from year to year, and this season the Bamboos give indication of becoming taller and more satisfactory. They lose all their leaves here in winter, but soon put forth others from the old shoots; the succeeding new shoots, however, gradually rise higher, and in the course of time, perhaps, the plants will be more imposing than at present. Panicum spectabile gigantea, noted last year as a very tall quick-growing Grass, was winter-killed at the roots under a heavy mulch, but is coming swiftly from self-sown seed. It grows so rapidly that its hardiness is of little importance. The Eulalias are so handsome and hardy that they really fill most of the requirements for tall Grasses. Of the smaller kinds, I like Elymus glaucus, with its steel-blue effectiveness. Pennisetum longistylum is a popular Grass, but its heads have rather a caterpillar-like effect which may not always please.

Elizabeth, N. J. *J. N. G.*

Correspondence.

Notes from West Virginia.

To the Editor of Garden and Forest:

Sir,—The Xanthoceras, which blooms here early in May, is a shrub which one likes to have close at hand, and fortunately it is an admirable plant while young to mask the foundations of the house, where it shows its full beauty. It has an upright tendency, and even the white bell-shaped flowers are held stiffly erect. The individual flowers have a centre of pale luminous yellow when they first open, which gradually deepens to red, and they come in long racemes and have a faint fragrance. Even when out of bloom the plant is attractive on account of its seed-vessels, and its neat foliage somewhat resembles that of the Mountain Ash.

Among many experiments in arranging shrubs which bloom at the same time, I may note a group of Exochordas and a variety of Japan Quince sold by nurserymen as Moerlosii. The Quince begins to bloom before the Exochorda, but its blossoms last longer, and when both are at their best the effect of the pure white flowers and light green foliage of the Exochordas, when contrasted with the dark glossy leaves and rich carmine flowers of the Quince, is strikingly beautiful. I may add that the Exochorda does not take kindly to our soil, and although plants sometimes reach a height of ten feet in six years after planting, this period is about the limit of their life with us. Another attractive group is composed of Virginia Fringe-trees and Laburnums. The flowers of the first, which resemble a veil of white mist, are well set off by the long, drooping, yellow racemes of the Laburnums, and, taken together, the two produce an admirable effect.

Neviusia Alabamensis suckers abundantly, so the one specimen of this beautiful shrub which we originally possessed has become a little thicket, which, when in flower, has such a delicate and feathery look that the Spiræa Van Houttei planted next to it and flowering at the same time seems coarse in comparison.

Our earliest Roses to bloom this year were the Scotch Rose, which flowered on the 3d of May and was quickly followed by Rosa cinnamomea and the yellow Austrian Brier. R. multiflora, which Garden and Forest has so often commended, has proved exceedingly valuable here, and is a beautiful object in flower, covering a large mass of rock with its tangled branches. Of the hybrid perpetual Roses, Ulrich Brunner is one of the most satisfactory. Its large, double, dark velvety flowers are borne in profusion, and its buds rarely come blind.

I cannot understand why everybody doesn't have a generous supply of Hemerocallis flava with its bright yellow lily-like and fragrant flowers. They are perfectly hardy, of easy culture and most useful for cutting, while they increase with great rapidity and endure much unkind treatment.

Shepherdstown, W. Va. *Danske Dandridge.*

The Development of Fungi.

To the Editor of Garden and Forest:

Sir,—That an intimate relation exists between certain fungous diseases and conditions of weather is a well-established fact. A most striking illustration is afforded by rust of wheat, and all observers agree that this disease is worse during rainy and sultry weather than when the opposite conditions prevail.

The genera Exoascus and Taphrina are certainly much worse in some years than in others. During 1892 and 1893 the following species were abundant at Ames, Iowa: the so-called Exoascus pruni, causing Plum pockets and an enlargement of the young stems of Prunus Americana and P. Chicasa; Exoascus deformans on Peach-trees; Taphrina aurea on Populus nigra. The years 1892 and 1893 may be compared with 1894. There has, this year, been little indication of the Exoascus on Plum-branches, though the Chippewa and Cheney Plums have some pockets. The Exoascus has not been seen on Peach-trees, though very common in 1892; nor has the Taphrina aurea been observed this year, though very common on some of the Russian Poplars in 1893. In 1893 rains were frequent during the month of May, followed by cold, raw and moist, alternated with hot days. It has been cold and raw at times this year, but there have been few rains here.

While the mycelium in Exoascus is perennial, the spread and rapid distribution of these diseases at certain times must be attributed in part to the rains, which carry the spores down over the leaves, stems and flowers. We may mention in this connection that the Exoascus deformans has been so severe on some of the Peach-trees that they were materially injured from the effects of the fungus in 1892 and 1893. We may add, however, that this locality is out of the range of such hardy Peaches as the Bokhara and Sargent and the fungus have done these trees more injury than if the varieties were perfectly hardy.

As another illustration showing how climatic conditions favor the development of certain fungus diseases, I may mention the Plum and Cherry rot, Monilia fructigena. This disease, though most evident when it attacks the nearly ripened fruit, is really most injurious to flowers. The season of 1892 is in strong contrast with this one. In 1892 the flowering period was accompanied by almost continuous rain. This year we had only slight showers, as in 1893. The failure of the plum crop may be accounted for on two grounds. The cold raw winds and rain prevented insects from flying, and thus the flowers were not pollinated; and the Monilia spreads with great rapidity during rainy moist weather. Many trees contained mummied plums, and from them the infection

spread rapidly to nearly all of the flowers. Not only did it affect the flowers, but in many cases the young leaves and twigs were affected. It spread to such plants as Amygdalus nana and to Peach-trees and miscellaneous plants growing in proximity to them. The fact that old rubbish is a constant source of danger should not be overlooked.

Iowa Agricultural College. *L. H. Pammel.*

The New Nurseries at South Orange, New Jersey.

To the Editor of GARDEN AND FOREST:

Sir,—Among the plants which I found at the nurseries of W. A. Manda a few days since, a rather full set of Ivies was particularly interesting. Few of these plants are in general cultivation, and I therefore made memoranda of the kinds which seemed most distinct and striking. Of the various forms of Hedera Helix, the variety Algeriensis has large light green leaves of varying shapes, and is, altogether, a very bright plant and apparently free in growth. The variety Dentata has still larger leaves and darker foliage, while Atropurpurea has the darkest foliage of all, being nearly black later in the year. The leaves are of medium size and rather more finely divided than those of Digitata, and the plant is a slow grower. The leaves of Digitata are blackish green, with light-colored veins, colors which also prevail in Donerailensis, a pretty small-leaved variety. In Chrysocarpa the central lobe is elongated, and the color is a greenish gray, while in Taurica the leaves are heart-shaped. Some of the variegated Ivies make good plants, and they may be useful for window-boxes and for cutting for floral arrangements. The best is a variety of Hedera Helix, which is named Marginata rubra, with occasionally another Latin adjective added. In autumn it takes on a deep rose color at the edge of the leaf which is maintained throughout the winter. Cavendishii is a pretty small-leaved kind for pots, while Banksiana has a wider golden margin, and Himalaica is a variety with longer leaves and light green centre and ample yellow margin. There is a variegated form of the Irish Ivy which, while very vigorous, is not constant in its variation.

Mr. Manda has gathered an extensive collection of greenhouse and hardy plants, among which I noticed the new white-flowered Canna, as it is sometimes called by florists, although it is botanically a Calathea. It is a new introduction from Guinea, strikingly like a Canna in form and habit, and its flowering is awaited with interest. There were fine specimens of the white-flowered Swainsonia galegifolia, whose dainty foliage and pure white pea-shaped flowers have made this an increasingly popular plant. Most of the well-known decorative species were here in abundance, and more seedlings of different plants than I have ever seen together. As an example of the fact that plants under glass sometimes take on new phases, I observed in one house some pots of the hardy Evening Primrose, Œnothera speciosa, the flowers of which were quite distinct, having deep yellow bases to the pure white petals.

This new nursery is located at South Orange; the four acres of land are rapidly filling with hardy plants, and the brook which borders it on one side is being broadened out into pools to furnish a supply of aquatic and bog plants.

New York. *R.*

Meetings of Societies.

The American Association of Nurserymen.

THE nineteenth annual convention of the American Association of Nurserymen brought together nearly three hundred members at Niagara Falls on the 6th of June, many of them from Ontario and remote states, although western New York was naturally most largely represented. Since this organization is devoted mainly to trade interests, the papers which are of interest to the general public were comparatively few. The President, Mr. N. P. Pearsall, of Fort Scott, Kansas, in his opening address said that nursery interests had weathered the commercial storm better than most other industries. In spite of apprehension, the trade this spring had been active, although prices were low, and nursery stock of all kinds in nearly every part of the country had been cleared up better than it had in many years. He criticised the laws enacted in some Pacific states, ostensibly for preventing the introduction of insects and plant diseases upon nursery stock, but which were better adapted, in his view, to keep out trees than pests, since their operation has practically excluded eastern trees. He argued that it would be easy to have nursery stock examined by experts where it was grown at the expense of the consignor. The inspection could be made then more carefully than after the stock had been packed and shipped, and there would be no danger of losing young trees on the frontier after they had made an expensive journey.

A long discussion followed a resolution favoring the admission without duty of all stock plants which cannot be successfully grown in this country, the chief argument being held on the question what particular stock plants can be profitably grown here. It seemed to be the general opinion that, even with the frequent use of spraying, Pear-stocks cannot be successfully grown here, and the same is practically true of the Quince-stock. In reference to Plums and Cherries, there was a difference of opinion.

A general expression of opinion in reference to the freezing weather of last March showed that its effects were serious as far north as North Carolina, and that it extended westward to the plains and southward to the Gulf. In the middle southern states it seems to have been the most serious late frost within the memory of the present generation.

Mr. J. H. Hale, of Connecticut, in the course of his address on "Profitable Methods of Introducing New Fruits," paid a eulogy to the labors of E. W. Bull, the introducer of the Concord Grape, and at his suggestion a purse of $100.00 was raised as a testimonial to Mr. Bull, and sent to him with appropriate resolutions. The essential point in the successful introduction of a new fruit, in Mr. Hale's opinion, is that it should supply some actual need, and without this it will never fill any prominent place, no matter how much it may be advertised.

Professor Bailey, of Cornell University, in speaking of synonyms, said that these can often be accounted for by a re-origination of some variety or by variation of the original type when it is grown under different conditions and in different localities. In this way synonyms have a distinct natural history, and the more synonyms a variety has the greater are the chances that this variety is adapted to a wide range of climate and uses. All the old sorts of fruits have many synonyms because seedling types of distinct origin are constantly referred to the original stock, each one being an independent testimony to the value of the kind. These synonymous forms are not necessarily identical with the parent, but are rather distinct strains or sub-varieties which may be better suited to certain purposes than the type itself.

Robert Douglas, the veteran nurseryman, of Waukegan, Illinois, read a paper on forestry which dealt particularly with the distribution of certain types and the relation of this distribution to the characters of seeds. For example, it was a particularly happy thought of Nature to give winged seeds to cone-bearing trees so that their gyrating motions as they fell might carry them from under parent trees, for if the seeds should germinate in their shade the seedlings would damp off.

Mr. N. H. Albaugh, of Ohio, spoke of the habit of some nurserymen of refusing trees on their arrival because they do not consider them to be of the grade which had been ordered. The trouble lies in the fact that there is no uniform system of grading fruit-trees. In eastern nurseries a first-class fruit-tree is one that has a heavy trunk and a low head, while in the west a tree is demanded which has a tall and slender habit of growth. Refuse nursery-stock is of no value to the distant consignor, and therefore buyers should familiarize themselves with the features of trees grown in different parts of the country and then exercise charity.

Mr. Wing R. Smith, in speaking of the culture of standard Pears, said that good stock could only be grown upon heavy land which was well drained. He considered tile drains a necessity in almost every soil which was suitable for a Pear nursery.

In the discussion which followed the paper of Mr. C. Morgan, of Ontario, on novelties, in which the introduction of new varieties, until after they had been thoroughly tested, was discouraged, the opinion prevailed that it was quite impossible to make anything like a full test of any novelty until it was sent out, and that really the only way to test varieties for all purposes is to introduce them.

J. H. Hale, of Connecticut, was elected President for the ensuing year; N. H. Albaugh, of Ohio, Vice-President; N. A. Whitney, of Illinois, Treasurer, and George C. Seagar, of Rochester, New York, Secretary.

Notes.

A fruit-grower in Chautauqua County, New York, who also grows flowers, had Crimson Clover in bloom in his orchard. In sending some cut-flowers to Buffalo, New York, he put in, by

way of variety, a few Clover-flowers, labeling them Trifolium incarnatum. The next day he received a telegraphic order for more, and he now finds his Clover-field a new source of revenue.

The extermination of our native flora by forest-fires is often more complete than that caused by plant collectors, who miss small seedlings and do not remove all the roots of plants, many of which will start from dormant eyes. But a fire, especially when it attacks the habitat of plants such as Cypripediums, imbedded in Sphagnum-moss and covered with old leaves, completely destroys them root and branch.

In early spring Oxalis purpurea, a native of the Cape of Good Hope, is one of the most delightful features in some Santa Barbara gardens, where this pretty little plant has become thoroughly established and where it forms broad mats of light green foliage studded with its large rosy flowers, which open in succession for a long time, and where it grows and blooms with a freedom and luxuriance unknown in the gardens of colder climates.

In some of the gardens of San Diego and Santa Barbara, Dolichos Lablab (D. lignosus), a tall, stout, woody climber, with trifoliolate evergreen leaves and short racemes of rosy-colored flowers with purple keels raised on long stout peduncles, is used with excellent effect to cover arbors and other buildings. It is a native of India, where it ascends the Himalayas to elevations of six to seven thousand feet. In California it begins to flower in early spring. Roxburgh describes thirteen varieties cultivated in India.

Cistus Monspeliensis, a low-growing evergreen, which is being carefuly tested in Mr. Meehan's nurseries at Germantown, to determine its hardiness, was covered with white flowers the first week in June. Another species, C. laurifolius, a large-growing shrub, is perfectly hardy, blooming in Germantown about the middle of this month. A specimen of Pterostyrax hispida, nearly twenty feet high, flowered beautifully in these nurseries this year; the ornamental value of this comparatively new hardy Japanese tree deserves to be more generally known.

The arguments for the protection of forests, wild plants and birds are many of them similar, as the interests defended are closely related, and Superintendent Babcock, of Oil City, Pennsylvania, has recently established a Bird Day in the schools under his supervision. The literary exercises were similar to those that have characterized the observance of Arbor Day for the last decade, the object being the preservation of American birds from the women who wear them and from the small boy. So excellent and useful an exercise can scarcely fail to become generally observed throughout our public schools.

In the last annual report of the Park Commissioners of the city of Louisville, Kentucky, a plate is given in which the damage done to street-trees by itinerant tree-trimmers is strikingly set forth. Some trees, whose leading branches had been carelessly lopped off, are shown, and their sickly, scarred and generally dilapidated look is in strong contrast with the picture of another tree of the same species which stands one hundred feet away from the first group and has been allowed to grow naturally. The plate teaches the lesson that bad pruning is worse than no pruning at all. We should like to see another illustration to show the good effects of proper pruning.

In the June issue of *Erythrea* Mr. J. G. Lemmon describes, under the name of Pinus Apacheca, a Pine collected by him on the Chiricahui Mountains of south-eastern Arizona, the name he has selected probably relating to the fact that these mountains were once a favorite stronghold of the Apache Indians. Its relationship is with P. ponderosa and P. latifolia, and, unless it may be considered an extreme northern form of P. Engelmanni of the Sierra Madre of Mexico, it will probably best be united with P. ponderosa, from which it hardly appears sufficiently distinct to be considered more than a variety of that widely distributed and very polymorphous species. Little, however, is known of the trees of the Chiricahui Mountains, now one of the least explored regions in the United States, botanically, and until more material can be obtained for the study of this tree any opinion upon Mr. Lemmon's species would, perhaps, be hazardous.

The Alligator Pear, as the fruit of Persea gratissima is known, is occasionally seen in this market, and although it ships well and of late years there is a growing demand for it, it has never become so popular here as it is in tropical countries where it is largely used as a salad-plant, and often eaten with pepper and salt only. Dr. Franceschi writes in a California paper that there is a specimen of this Persea in Santa Barbara which is eighteen years old, and is now thirty feet high, and ripens in favorable seasons five hundred fruits. Seedlings from this tree and from other sources vary much in the size and shape of their leaves, and, no doubt, the fruit will show similar variation, so that by careful selection better varieties may be secured and propagated by grafting. The tree is a beautiful evergreen of pyramidal growth, with glossy foliage and greenish flowers, which appear in short panicles on the tops of the branches, not unlike those of the California Laurel, to which it is closely related.

One hundred and fifty years ago Baron Henry William Stiegel settled in Lancaster County, Pennsylvania, and founded the borough of Manheim, calling it after his native town in Germany. The Baron founded large iron and glass works and cultivated a Rose-garden which attracted visitors from afar. In his old age, fearing that the church he had built might be some time claimed by his heirs, he gave the church, together with the land for a cemetery, to the congregation, with the proviso that a red rose should be paid every year to himself or his heirs. The tribute was paid annually for nearly a hundred years, when it fell into disuse, but has lately been revived again, and last week the rose festival of Manheim was celebrated, and the old church was transformed into a bower of beauty, great numbers of people gathering from the surrounding country with contributions of roses and other flowers for its decoration. The red rose was presented by the pastor, Dr. L. Lohr, to Mrs. Rebecca Boyer, of Harrisburg, the great-granddaughter of Baron Stiegel, and other descendants of the Baron were present from Virginia and other states as well as from Germany. An oration was delivered by Attorney-General Hensel.

It is certainly strange that American gardeners have paid so little attention to the Mountain Laurel, Kalmia latifolia, as a decorative plant. Probably there is not one Laurel planted in this country for every thousand Rhododendrons and Azaleas, although the flowers of the Laurel are not less beautiful; indeed, some good judges consider them more beautiful than the flowers of any other American shrub. It is, moreover, an easier plant to cultivate, and much less particular about soil and exposure. One of the reasons why it has been neglected, no doubt, is that it is a common native shrub, and another is that it is not always an easy matter to procure well-grown plants. Young plants can be dug up in the woods, but they require some care and cultivation in the nursery before becoming well established. Now, however, small plants covered with flower-buds can be obtained from Dutch nurserymen by the thousand at what seems a ridiculously low price. At this time of the year no other shrub is so beautiful in the northern states; it is one of the best subjects to plant on the borders of natural woods or in other half-wild situations, as it endures the shade of overhanging trees and does not suffer from drought. Its value as a decorative plant should be better known and more often insisted upon.

The benefit of cross-fertilization as a means of increasing the productiveness of Plum-trees has been often observed, but some experiments made by C. H. Heideman at New Ulm, Minnesota, seemed to indicate that within certain limits foreign pollen has a secondary effect upon the size and quality of the fruit. Blossoms of the Wolf Plum fertilized with pollen from the Hiawatha Plum produced fruit which very early showed superior size to those fertilized with the pollen of half a dozen other varieties, and when ripe they were of a plainly superior quality. The pollen from other varieties showed its influence on the fruit for good or bad where blossoms were cross-fertilized on the same tree. Differences in individuals of the same groups—that is, in the fruits which resulted from pollen from any one tree—were scarcely noticeable, but these differences were marked when the various groups were compared. Another instance was cited in which a tree bore large, oblong, free-stone fruit of good quality when it was fertilized by pollen from a Weaver tree, but when left to itself the fruit was smaller, round and cling-stone. It should be added that these results do not agree with the tests made at several of our experiment stations, where the weight of authority indicates that among Rosaceous plants there is no immediate secondary effect of pollen upon the fruit. The question, however, is still in dispute, and if the quality of plums improves or deteriorates when the blossoms are cross-fertilized, it is a matter of importance to know which varieties to plant for the production of pollen.